

Do EVMS & FFP Belong Together ?

Australia's Experience with EVMS on FFP contracts & some lessons learned.



Presented by: Jim Muir, Director of Acquisition Review,
Australian Department of Defence at the PMA's 14th Annual
Conference, May 17-20, 1998. Clearwater Beach Florida.

Our Environment



- ◆ Large country with a small population
- ◆ Low Defence Budget:
 - 1996/97 Total approx AUS\$10 Bn or 2% GDP
 - Capital component approx. AUS\$2.3 Bn with 70% spent in Australia
 - Service strength 57000 Civilian 19000
- ◆ Small industrial base - further consolidating
- ◆ Mostly Fixed Price Contracts - 70% spent on projects with EVMS

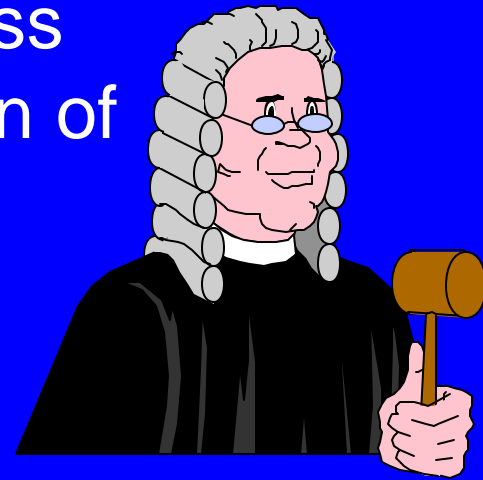
Australian EVM History



- CSCSC applied to 2 projects in mid 1980s
- JPAC Report 243 (1986) requires adoption of CSCS
- Defence accepts recommendation & applies first on Submarine & ANZAC “mega”projects
- Formation of dedicated focal point (DPMS) in 1989
- Criteria published & first company validated 1990
- US/Australia mutual recognition late 92, trilateral acceptance of validations Feb 95
- ACSIG progressively developed, finalised 1993
- IPMC formed mid 93

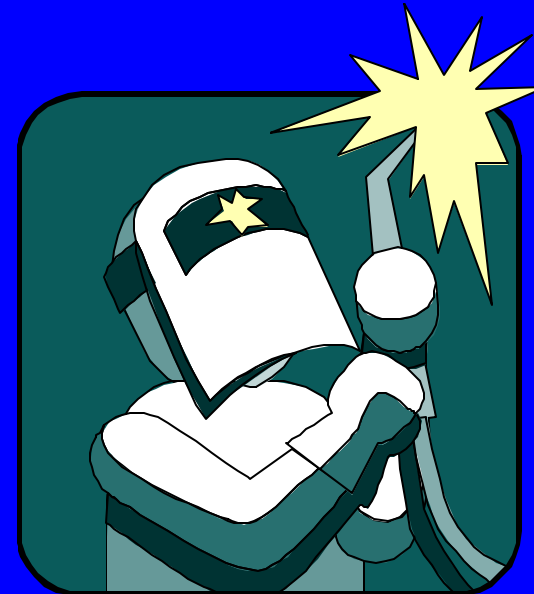
JPAC 243 RECOMMENDATIONS

- ◆ Recommendation 30 CSCS be introduced to assist contractors upgrade their management information systems
- ◆ Recommendation 31 CSCS become the basis for cost and schedule reporting by contractors for all major projects
- ◆ Recommendation 32 Progress payments be geared to submission of satisfactory CSCS Report

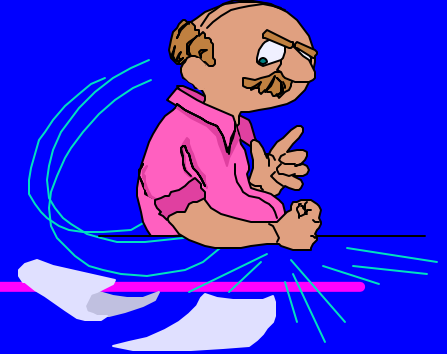


Initial Industry Response

- ◆ You can't be serious
- ◆ We don't operate that way
- ◆ Industry won't tolerate this - we won't do business with Defence
- ◆ It's un-Australian!



Problems / objections



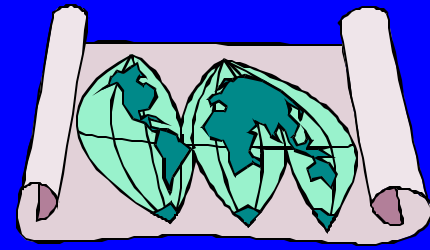
- ▶ Objections to EVM with Fixed Price contracts
- ▶ Objections to reporting actual costs
- ▶ Objections to reporting overheads
- ▶ Confusion as some within Defence too ready to accept industry viewpoint
- ▶ Failure of Defence to make it quite clear what the rules were

Myths



- ◆ FFP has no cost risk to the customer
- ◆ EVMS is too costly - an unnecessary overhead
- ◆ EVMS is not required for production
- ◆ We can't divulge our costs/margin/profit/rates

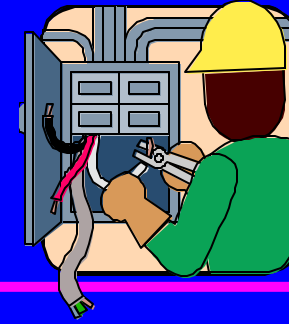
EVMS Principles



EVMS

- ◆ is a PM system not Funds Management
- ◆ is a world's best PM practice
- ◆ system enhancement encouraged
- ◆ provides the contractor and client with accurate status of the contract
- ◆ enables performance data summarisation to any level for effective decision making

Contractors' View



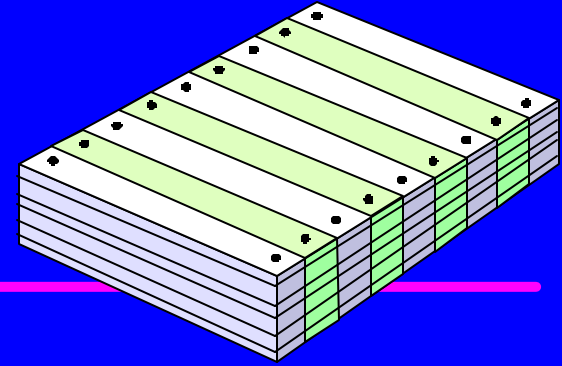
- ◆ Need an integrated system to manage effectively
- ◆ EVMS is best project management practice
- ◆ Benefits from one set of business practices
- ◆ Cost overrun on FFP will impact profit
- ◆ Early visibility of problems essential for the company to remain in business
- ◆ Many aspects already applied, so incremental cost of EVMS low

Customer View



- ◆ Wants timely and accurate status visibility
- ◆ Early indications of cost/schedule overrun assist proactive management
- ◆ Cost/schedule problems a leading indicator of quality problems
- ◆ Risk sharing may be more cost effective than risk avoidance

Report Types



- ◆ CMACS - Collins class Submarines
- ◆ CDAMS - Anzac Frigates
- ◆ Price Based CPR - F111 AUP
- ◆ CPR in Hours - with actuals and EAC
- ◆ Cost Based CPR - our standard requirement

Early Review Issues



- ◆ Who sees what information (rates, profit, logs etc)
- ◆ Interview preparation - data availability
- ◆ Overhead management
 - single project companies
 - corporate overheads (G&A)
- ◆ Rebaselining - who owns the CBB?

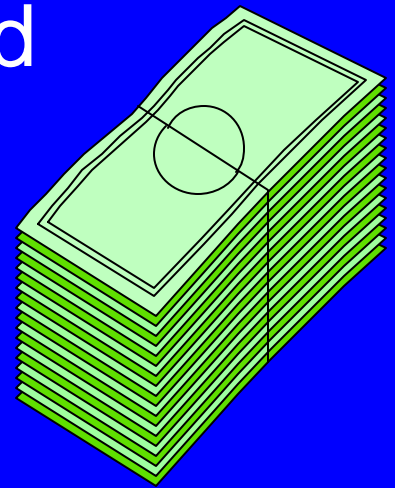
Mature Industry Position



- ◆ Initial resistance to providing cost based EVM data has evaporated
- ◆ Acceptance of DoD's requirement for CPR type reports
- ◆ Focus is on how to make EVMS outputs useful to both industry and the customer, including: hours based reports for production, weekly statusing, timely reports, forward looking emphasis

Progress Payment based on EV

- ◆ link to JPAC recommendations
- ◆ problems with defining and pricing high level milestones
- ◆ EV as the “best estimate” of progress
- ◆ companies desire to eliminate duplication between EVMS and invoicing systems



EV Payment Models

- ◆ 100% earned value
- ◆ mix of EV and milestones



Mixed Model

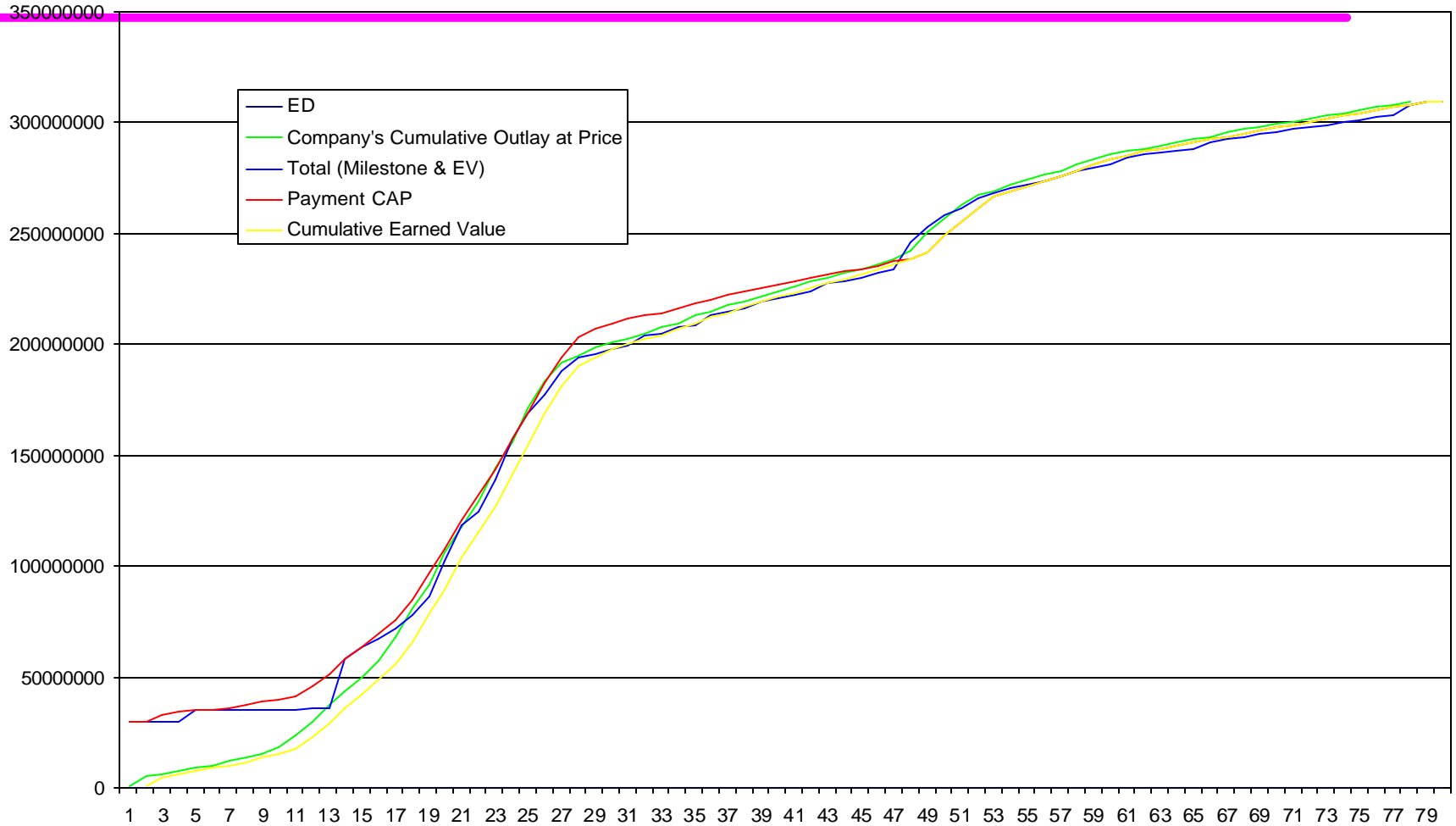
Company Assumptions:	
EVP % of Month Completed =	0.8

Contract Provisions:	
EV Percentage =	0.6
CSCS Accreditation at ED =	12
Contract Price =	309,642,202
Price Cap based on ED =	48

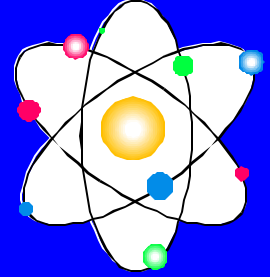
Interest rates:	
Company Overdraft Rate =	
Commonwealth's Bond Rate =	

A*	B	C*	D	E	F	G	H*	I	J	K	L*
Company Projection								Sum of Milestone Payments (except Initial) as a Percentage =	100.00%	Total effect on interest over contract period =	
ED	Company's Monthly Outlay at Price	Company's Cumulative Outlay at Price	Advance Payments to Sub-Contractors & Recoveries	Monthly Earned Value	Cumulative Earned Value	Monthly EV Claim	Cumulative EV Claim	Milestone	Milestone Payments as a Percentage	Milestone Payment Value	Total (Milestone & EV)
0	473,751	473,751						Mobilisation		30,000,000	30,000,000
1	4,312,175	4,785,926		379,001	379,001				0.00%		30,000,000
2	1,296,724	6,082,650		3,544,490	3,923,491				0.00%		30,000,000
3	1,308,807	7,391,457		1,899,814	5,823,305				0.00%		30,000,000
4	1,330,224	8,721,681		1,306,390	7,129,696				4.50%	4,223,560	34,223,560
5	1,273,018	9,994,699		1,325,941	8,455,636			SRR	0.00%		34,223,560
6	1,899,331	11,894,030	10,000,000	1,284,459	9,740,095			IBR	0.00%		34,223,560
7	1,654,537	13,548,567		1,774,068	11,514,164				0.00%		34,223,560
8	1,721,028	15,269,595	-1,000,000	1,703,496	13,217,660				0.00%		34,223,560
9	2,783,687	18,053,282	-1,000,000	1,707,730	14,925,389			DAC & Design Report	0.00%		34,223,560
10	5,299,238	23,352,520	-1,000,000	2,571,155	17,496,545				0.00%		34,223,560
11	6,687,422	30,039,942	-1,000,000	4,796,128	22,292,672			System PDR	2.00%	1,877,138	36,100,697
12	7,378,816	37,418,758	-1,000,000	6,409,785	28,702,458			C2S2 Accreditation	0.00%		36,100,697
13	5,788,499	43,207,257	-1,000,000	7,240,537	35,942,995	21,565,797	21,565,797		0.00%		57,666,494
14	6,089,395	49,296,652	-1,000,000	6,106,562	42,049,557	3,663,937	25,229,734	NMF1 & Riverina Construction Complete	2.00%	1,877,138	63,207,569
15	8,022,077	57,318,729	-1,000,000	6,029,216	48,078,773	3,617,529	28,847,264		0.00%		66,825,099
16	10,234,901	67,553,630	-1,000,000	7,635,541	55,714,314	4,581,324	33,428,588		0.00%		71,406,423
17	13,027,265	80,580,895	-1,000,000	9,792,336	65,506,650	5,875,402	39,303,990		0.00%		77,281,825
18	11,009,176	91,590,071		12,468,792	77,975,442	7,481,275	46,785,265	FITS Complete	1.50%	1,407,853	86,170,953
19	14,742,655	106,332,726		11,412,794	89,388,236	6,847,676	53,632,941	System DDR (Fixed Network Functionality)	10.00%	9,385,688	102,404,318
20	10,872,623	117,205,349		13,995,959	103,384,195	8,397,576	62,030,517	Works at four Sites Complete	7.50%	7,039,266	117,841,159
21	11,971,333	129,176,682		11,646,629	115,030,824	6,987,978	69,018,495		0.00%		124,829,137
22								Riverina & NMF1 installation (Basic System Concept Design Complete)	7.50%	7,039,266	138,919,358
23	15,100,466	144,277,148		11,751,591	126,782,415	7,050,955	76,069,449	System DDR (Core)	10.00%	9,385,688	156,989,829
24	11,790,453	156,067,601		14,474,639	141,257,055	8,684,784	84,754,233	Darwin Node Installation Complete	0.00%		168,215,578
25	15,108,081	171,175,682		12,452,456	153,709,510	7,471,473	92,225,706		4.00%	3,754,275	176,882,311
26	11,847,274	183,022,956		14,444,555	168,154,066	8,666,733	100,892,439	Remaining Node Installation Complete	0.00%		176,882,311
27	8,741,610	191,764,566		12,499,435	180,653,501	7,499,661	108,392,101		3.50%	3,284,991	187,666,963
28	2,810,882	194,575,448		9,362,743	190,016,244	5,617,646	114,009,746		0.00%		193,284,609
29	3,525,666	198,101,114		3,997,028	194,013,272	2,398,217	116,407,963		0.00%		195,682,825
30	2,437,736	200,538,850		3,382,709	197,395,981	2,029,626	118,437,588		0.00%		197,712,451
31	1,771,745	202,310,595		2,655,322	200,051,303	1,593,193	120,030,782	Software Build 1 DDR Complete	0.50%	469,284	199,774,929
32	2,384,137	204,694,732		1,904,943	201,956,246	1,142,966	121,173,748	Final System PDR	2.50%	2,346,422	203,264,316
33	2,575,867	207,270,599		2,261,659	204,217,905	1,356,995	122,530,743		0.00%		204,621,312
34	2,461,451	209,732,050		2,537,521	206,755,426	1,522,513	124,053,255	System DDR (Intermediate)	1.50%	1,407,853	207,551,677
35	2,950,181	212,682,231		2,484,334	209,239,760	1,490,601	125,543,856		0.00%		209,042,278
36	2,177,760	214,859,991		2,852,435	212,092,195	1,711,461	127,255,317	Software Build 1 Complete	2.50%	2,346,422	213,100,161
37	2,631,979	217,491,970		2,332,244	214,424,439	1,399,347	128,654,663		0.00%		214,499,507
38	2,007,589	219,499,559		2,541,135	216,965,574	1,524,681	130,179,345		0.00%		216,024,189
39	1,973,162	221,472,721		2,132,467	219,098,041	1,279,480	131,458,825	System TRR (Core)	2.50%	2,346,422	219,650,091
40	1,944,517	223,417,238		1,980,047	221,078,089	1,188,028	132,646,853		0.00%		220,838,119
41	2,405,522	225,822,760		1,950,246	223,028,335	1,170,148	133,817,001		0.00%		222,008,267
42	1,929,546	227,752,306		2,313,321	225,341,656	1,387,993	135,204,993		0.00%		223,396,259
43								Transition to RAAF Operations Complete	3.00%	2,815,706	227,426,811
44	2,376,960	230,129,266		2,024,741	227,366,397	1,214,845	136,419,838		0.00%		228,799,297
45	1,901,015	232,030,281		2,287,477	229,653,874	1,372,486	137,792,324		0.00%		229,997,019
46	1,901,110	233,931,391		1,995,204	231,650,078	1,197,722	138,980,047		0.00%		231,000,000
47	2,375,618	236,307,009		1,901,091	233,551,169	1,140,655	140,130,701	Land Mobiles DDR	1.00%	938,569	232,076,243
48	1,896,658	238,203,667		2,280,716	235,831,885	1,368,430	141,499,131		0.00%		233,444,673
49	3,993,797	242,197,464		1,992,450	237,824,335	1,195,470	142,694,601	Core Acceptance	12.00%	11,262,826	245,902,968
50	8,436,433	250,633,897		3,574,369	241,398,705	2,144,622	144,839,223	System DDR (Final)	5.00%	4,692,844	252,740,434

EV Model Chart

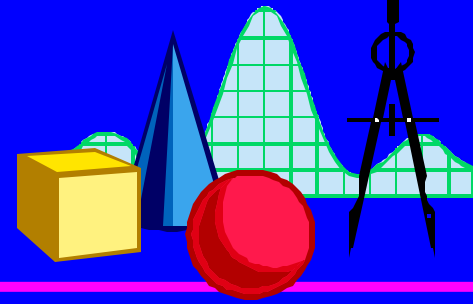


EV Payment Complexities



- ◆ comparing bids - time cost of money
- ◆ mobilisation payments
- ◆ lag between incurring cost and receiving payment
- ◆ material inventory
- ◆ picking low hanging fruit
- ◆ customer leverage vs. neutral cash flow
- ◆ companies new to EVMS - when can EV payment start

Preferred Model



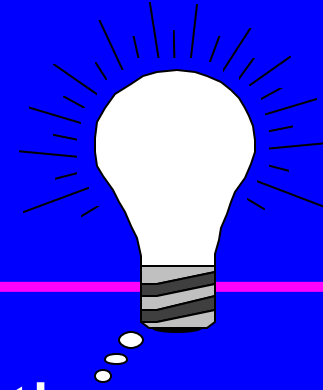
- ◆ Mixed milestone / EVP used for all contracts with EVMS
- ◆ Majority of the price (50-90%) to EVP
- ◆ Rest on achievement of milestones
- ◆ Split varies according to project value, risk, complexity, duration

Verifying EV Based Claims

- ◆ Review CPR - complete, correct
- ◆ Alignment with schedule, narrative
- ◆ Sample check CA & WP data
- ◆ Recommend payment or query data



Lessons Learned



- ◆ Clear leadership and direction needed
- ◆ Industry concerns must be heard
- ◆ Trust can be built and new norms established - Partnership is key
- ◆ EV payment can work
- ◆ EVP complexities need to be appreciated
- ◆ EVP assists in integrating EVM to core business